



Research Article

A COMPARATIVE CLINICAL STUDY TO EVALUATE THE EFFECT OF HARIDRADI GANA CHURNA AND TRIPHALA CHURNA UDVARTANA IN STHOULYA (OBESITY)

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ABSTRACT

In the present century due to the busy and sedentary life people open the gate to welcome numerous diseases. *Sthoulya* is one among the major diseases that falls under the category of *Santarpanottha vyadhi*. The term overweight and obesity refers to body weight that is greater than what is considered healthy for a certain height. *Sthoulya* is mainly caused by *Kapha, Vata Doshas* and *Meda Dhatu*. *Udvartana* has better results in the management of *Sthoulya*, as it does *Kapha-Vatahara, Medo vilayana*. So, the present has been conducted to compare and evaluate the effect of *Haridradi gana Churna* and *Triphala Churna Udvartana* in *Sthoulya*. The study has been conducted in two groups with 20 patients each. One with *Haridradi gana Churna* and other group with *Triphala Churna* which are *Kapha-Medahara* & *Kapha-Pramehahara* respectively because of *Laghu, Ruksha* & *Ushna* properties. The present study concludes saying *Haridradi gana Churna* showed better results than *Triphala Churna*.

KEYWORDS: *Sthoulya, Santarpanottha Vyadhi, Obesity, Udvartana, Vata, Kapha, Meda.*

INTRODUCTION

Sthoulya is one among the major diseases that falls under the category of *Santarpanottha Vyadhi* (Nutritional disorder).^[1] The term overweight and obesity refers to body weight that is greater than what is considered healthy for a certain height and hence overweight can be commonly said as pre obesity. According to W.H.O overall about 13% of the world's adult population (11% men and 15% women) were obese in 2016. The world wide prevalence of obesity nearly tripled between 1975 and 2016.^[2] Obesity is a condition in which the levels of Lipoproteins, Cholesterol and Triglyceride are raised in plasma. Obesity is a major risk factor in the development of chronic non-communicable diseases like cardiovascular disease, high blood pressure, stroke, type-2 diabetes, osteoarthritis, liver cirrhosis, exertion dyspnoea, varicose veins, PCOS etc. ^[3] There is no much treatment available for obesity other than physical exercise, supervised low-calorie diet, appetite suppressant drugs and surgery. ^[4]

In the texts of Ayurveda, an elaborate description has been given about *Sthoulya*. *Sthoulya* comes under 20 *Kaphaja Nanatmaja Vyadhi*^[5]. Acharyas considered *Atisthula* as one among the *Astonindita Purusha*. ^[6] *Sthoulya* is mainly caused by *Kapha, Vata Doshas* and *Meda Dhatu*. ^[7] *Sthoulya*

interferes the daily activities as it causes *Athyadikya Sweda Pradurbhava* (excessive sweating), *Swasa-kruchata* on *Alpa shrama* (exertion dyspnoea), *Jadyata* (stiffness), *Alpabala* (lack of strength), *Sharira dourgandha* (bad body odour) etc. ^[8]

Nidana Parivarjana (avoiding the causative factors), *Karshana, Guru atarpana* and *Shodhana* (purification) are the principles of treatment in *Sthoulya*. ^[9] The utility of *Udvartana* has found better results in the management of *Sthoulya*. It is a *Rukshana* type of treatment where medicated powder is rubbed over the body in opposite direction of hair root with tolerable pressure. It does *Kapha-Vatahara* (subsides *Kapha* and *Vata*), *Medo vilayana* (Liquefies fat), *Sthirakarana* of *anga* (brings stability in the body) etc. ^[10] In this present study *Udvartana* is done with *Haridradi gana Churna* (Group A) which acts as *Kapha Meda hara* ^[11] by its property of *Laghu Ruksha guna* and *Ushna veerya* and *Triphala Churna* (Group B) is used for other group which acts as *Tridosha hara*.^[12] Both *Haridradi gana* and *Triphala Churna* played a good role in treating *Sthoulya*. The present study was conducted with 40 patients, which were randomly distributed into two groups. The subjective and objective parameters were assessed before, after treatment and after follow up.

MATERIALS AND METHODS

Patients suffering from *Sthoulya* were selected randomly from IPD & OPD of D.G.M. Ayurvedic Medical College Hospital and Research Centre, Gadag based on diagnostic criteria. The trial

drugs are collected from local areas and market after being properly identified. *Haridradi gana Churna* and *Triphala Churna* were prepared in the D.G.M. Ayurvedic Medical College Pharmacy.

Composition of Trial Drug**Table.1 Haridradi Gana Churna**

Drugs	Latin name	Part used	Quantity
<i>Haridra</i>	<i>Curcuma longa</i> Linn.	<i>Kanda</i>	1 part
<i>Yastimadhu</i>	<i>Glycyrrhiza glabra</i> Linn.	<i>Moola</i>	1 part
<i>Daruharidra</i>	<i>Berberis aristata</i> DC.	<i>Kanda</i>	1 part
<i>Prishnaparni</i>	<i>Uraria picta</i> Desv.	<i>Moola</i>	1 part
<i>Kutaja</i>	<i>Holarrhena antidysenterica</i> Wall.	<i>Twak</i>	1 part

Table.2 Triphala Gana Churna

Drugs	Latin name	Part used	Quantity
<i>Haritaki</i>	<i>Terminalia chebula</i> Retz	<i>Phala</i>	1 part
<i>Bibhitaki</i>	<i>Terminalia bellerica</i> Roxb	<i>Phala</i>	1 part
<i>Amalaki</i>	<i>Embilica officinalis</i> Gaertn	<i>Phala</i>	1 part

Inclusion criteria

- Patient with *Prathyatma Lakshana* (cardinal symptoms) of *Sthoulya*.
- Patient fit for *Udvartana*.
- BMI > 25Kg/m²
- Patients of either sex aged between 18 to 60 years.

Exclusion criteria:

- Patient unfit for *Udvartana*.
- Other systemic diseases like cardio vascular disease, PCOD, uncontrolled diabetes etc which will interfere the treatment.
- Patients aged below 18 years and above 60 years.

Study design: It was a simple prospective comparative clinical study and total 40 patients were taken in 2 groups equally i.e. Group A and Group B. A comparative clinical study was done by treating the patient with *Haridradi gana Churna Udvartana* and *Triphala Churna Udvartana* respectively.

Posology:

Group A: 20 patients were subjected to *Udvartana* for 45 minutes with *Haridradi gana Churna* for 10 days.

Group B: 20 patients were subjected to *Udvartana* for 45 minutes with *Triphala Churna* for 10 days.

The procedure of *Udvartana* was carried out as explained in the Ayurvedic texts.

Duration of treatment : 10 days

Follow up : 15 days

Total duration of study: 25days

Patients were assessed clinically on 0, 10th and 25th day.

Assessment criteria: Assessment of the condition was done based on a detail Proforma, adopting standard methods of scoring of subjective and objective parameter and was analyzed statistically.

Subjective parameters with grading:**Ati kshudha (excessive hunger)**

1. Feels hunger at next *Annakala*-0
2. Feels hunger for once in between *Annakala*-1
3. Feels hunger twice in between *Annakala*-2
4. Feels hunger more than twice in between *annakala*-3

Atipipasa: (excessive thirst)

1. 2.5 lit to 3.0 lit water per day -0
2. 3.0 lit to 4.0 lit water per day-1
3. 4.0 lit to 5.0 lit water per day-2
4. More than 5.0 lit water per day-3

Nidradhikya: (excessive sleep)

1. 6-8 hours sleep/day-0
2. 8-9 hours sleep/day-1
3. 9-10 hours sleep/day-2
4. More than 10 hours sleep/day-3

Alasya/Utsaha hani: (lassitude)

1. Absent-0
2. Doing work satisfactory but initiation late in time-1

3. Doing work unsatisfactory with initiation late in time with lot of mental stress-2
4. Does not have initiation & do not want to work even after motivation-3

(Triceps skin fold + Biceps skin fold + Sub scapular skin fold + Suprailiac skin fold)

Overall assessment: Overall assessment of result was made by considering the collective effect of objective and subjective parameters of each group. The assessment is as follows:

- Well responded 76-100% relief in assessment criteria.
- Moderately responded 51-75% relief in assessment criteria.
- Responded 25-50% relief in assessment criteria.
- Unchanged <25% relief in assessment criteria.

Statistical method: Assessment was done by considering the base line data of subjective and objective parameters to pre and post medication and was analyzed statistically with the help of SPSS software by using "t" test.

Investigations: (Before treatment only)

- RBS
- Lipid profile.

Swasakruchata: (difficulty in breathing)

1. Absent-0
2. On accustomed work-1
3. Less than accustomed work-2
4. At rest-3

Objective parameter

1. Body Mass Index = $\frac{\text{weight (kg)}}{\text{Height (m}^2\text{)}}$

2. Waist circumference= Circumference around the waist (inc)

3. Waist hip ratio= $\frac{\text{Waist circumference}}{\text{Hip circumference}}$

4. Skin fold thickness= Sum of skin fold thickness (mm)

RESULTS

Table 3: Statistical Analysis of Group A (Bt and AF)

	Mean		MD	Reduction	SD	SE	t	p	Re- marks
	BT	AF							
Atikshudha	0.75	0.20	0.55	73.33%	0.686	0.153	3.584	0.002	S
Atipipasa	0.40	0.15	0.25	62.5%	0.44	0.099	2.517	0.021	S
Nidradhikya	1.00	0.35	0.65	65%	0.745	0.17	3.901	0.001	HS
Alasya	1.25	0.2	1.05	84%	0.394	0.088	11.92	0.0005	HS
Swasakruchata	1.05	0.000	1.05	100%	0.605	0.135	7.764	0.0005	HS
BMI	30.95	30.17	0.78	2.5%	0.3738	0.0836	9.278	0.0005	HS
Waist circumference	42.53	41.325	1.2085	2.84%	0.87	0.195	6.209	0.0005	HS
Waist Hip Ratio	0.94	0.937	0.007	0.74%	0.026	0.006	1.196	>0.05	NS
Skin fold thickness	108.70	100.70	8.00	7.36%	4.304	0.962	8.312	0.0005	HS

Table 4: Statistical Analysis of Group B (BT and AF)

	Mean		MD	Reduction	SD	SE	t	p	Remarks
	BT	AF							
Atikshudha	0.40	0.25	0.15	37.5%	0.37	0.82	1.831	>0.05	NS
Atipipasa	0.30	0.15	0.15	50%	0.37	0.082	1.831	>0.05	NS
Nidradhikya	1.05	0.35	0.7	66.66%	0.73	0.164	4.273	0.0005	HS
Alasya	1.35	0.35	1.00	74.07%	0.459	0.103	9.747	0.0005	HS
Swasakruchata	1.20	0.05	1.15	95.8%	0.489	0.109	10.510	0.0005	HS
BMI	31.60	30.9	0.70	2.22%	0.612	0.137	5.12	0.0005	HS
Waist circumference	40.92	39.89	1.03	2.52%	0.84	0.188	5.493	0.0005	HS
Waist Hip ratio	0.94	0.93	0.12	12.24%	0.02	0.0046	2.529	0.020	S
Skin fold thickness	103.95	94.8	9.15	8.8%	4.69	1.0495	8.718	0.0005	HS

BT-Before treatment, AF- After follow-up, MD- mean deviation, SD- Standard deviation, SE- Standard error

DISCUSSION

In the present study maximum incidence of *Sthoulya* was found in females than in male and most of them belong to age group between 26-35 years and belong to mixed diet. Caesarean delivery, *Vishamashana* (taking food irregularly or without following a particular time and proper quantity) and Hereditary factors are the main causes found in obese females.

Discussion on drug

Sthoulya is associated with *Kapha* predominant, *Vata Dosh* and *Meda dathu*. *Haridradi gana* acts as *Meda-Kaphahara* in nature. *Haridra*, *Daruharidra*, *Kutaja* have *Laghu* (light) *Ruksha* (dry) *guna*; *Haridra*, *Daruharidra*, *Prishnaparni* have *Ushna veerya* (hot potency); *Yastimadhu* have the *karma* of *Kapha nissaraka*. On the whole all these drugs have opposite qualities of *Kapha* and *Meda* acts as *Kapha Medahara*. So, this *Gana* was selected for *Udvartana*. Apart from these properties *Haridra* has *Varnya guna* (improves complexion) hence during the study we have also noted that the patients were happy to express their results like change in skin complexion and skin texture especially with *Haridradi gana Churna Udvartana*.

Triphala acts as *Kaphaghna* and *Prameha nashaka* (anti-diabetic). In *Prameha* (diabetes) *Kapha-Meda* is mainly involved and so as in *Sthoulya*. *Haritaki*, *Vibhitaki* and *Amalaki* have *Ruksha* and *TriDoshahara guna* (reduces three *Doshas*), *Haritaki* and *Vibhitaki* has *Laghu guna* and *Ushna veerya*. Hence this group of drugs is selected for *Udvartana*.

Discussion on Udvartana procedure

As *Sthoulya* is one of the *Santarpanajanya vyadhi* it is best dealt with *Apatarpana Chikitsa*. *Udvartana* is a procedure of rubbing dry powder over the body with tolerant pressure in the opposite direction of the hair roots. *Udvartana* does *Kapha*, *Vatahara* and *Meda vilayana*. There by it may reduce *Gurutva* (Heaviness), *Alasya* (Lazy), *Swasa krichrata*, *Dourgandhya*.

Probable mode of action of Udvartana

The medicated powder is rubbed over body in the opposite direction of hair root. Rubbing may help in the absorption of effusions, relief of blood stasis and carries away the morbid products in the system. The pressure helps the contents of the blood vessels move towards the heart, if applied strongly and quickly, it has a stimulating effect. It increases nutrition in tissues, removes fatigue, carries away the increased products of combustion. The skin as well as the structures which lie beneath it is affected by massage. The stored amount of blood may be brought

in the systemic circulation instead of them remaining dormant in the stored system.

Udvartana has *Kapha-Meda vilayana* property. To enhance the *Medovilayana* property, *Katu-Tikta rasa* (pungent-bitter); *Ushnavirya*; *Laghu-Ruksha-Tikshna guna dravyas* are present. *Twakastha agni* gets stimulated, this leads to absorption and digestion of the drug and further does *Pravilayana* of *Medha Dhatu* (liquefaction of subcutaneous fat) below skin may occur. In *Sthoulya* there is increase in *vikruta Meda Dhatu* which increases *Kleda*. Due to *kleda*, *srotas* (channels) get obstructed and *abaddha Meda Dhatu* (loose fat) is formed. This may lead to *Dhatu agni mandya* (decreased molecular level fire of *MedaDhatu*). Due to *Ushna*, *Tikshna*, *Laghu* property of the *Dravya* and procedure, it acts as *Medahara*. Due to *Ruksha guna* of *Dravya* and *Ruksha Udvartana*, *kleda* gets absorbed (*Shoshane Ruksha*|| Hemadri) Thus *Abaddhatva* of *Meda* and *Kapha* might have reduced.

Discussion on Result of clinical study

- **Atikshudha:** In the present Clinical study observation is made that, Group A having statistically high significance in reducing the symptom of *Atikshudha* where as Group B is not having statistical significance. The treatment response for *Atikshudha* statistical value shows that there is difference between Group A and Group B. In reduction % Group A is better than Group B. The reduction % is increased in Group A and remains same in Group B after follow up.
- **Atipipasa:** In the present Clinical study observation is made that, Group A and Group B both are statistically non significant in reducing the symptom of *Atipipasa*. The treatment response for *Atipipasa* statistical value shows that there is difference between Group A and Group B. In reduction % Group A is better than Group B. The results remain same even after follow up in both groups.
- **Nidradhikya:** In the present Clinical study observation is made that, Group A and Group B both are statistically highly significant in reducing the symptom of *Nidradhikya*. The treatment response for *Nidradhikya* statistical value is equal in both groups. In reduction % Group A is better than Group B after treatment, but after follow up Group B is better than Group A.
- **Alasya/Utsaha hani:** In the present Clinical study observation is made that, Group A and Group B both are statistically highly significant in reducing the symptom of *Alasya/Utsaha hani*. The treatment response for *Alasya/Utsaha hani*

statistical value is equal in both groups. In reduction % Group A is better than Group B. After follow up the reduction % is increased in Group A and remains same in Group B.

- **Swasakruchrata:** In the present Clinical study observation is made that, Group A and Group B both are statistically highly significant in reducing the symptom of *Swasakruchrata*. The treatment response for *Swasakruchrata* statistical value is equal in both groups. In reduction % Group B is better than Group A, but after follow up Group A is better than Group B.
- **BMI:** In the present Clinical study observation is made that, Group A and Group B both are statistically highly significant in reducing the BMI. The treatment response for BMI statistical value is equal in both groups. In reduction % Group A is better than Group B. The result remains same even after follow up.
- **Waist circumference:** In the present Clinical study observation is made that, Group A and Group B both are statistically highly significant in reducing the Waist circumference. The treatment response for Waist Circumference statistical value is equal in both groups. In reduction % Group A is better than Group B. Even though the reduction % is reduced in Group A after follow up but still it is better than Group B.
- **Waist-Hip ratio:** In the present Clinical study observation is made that, Group B having statistical significance in reducing the Waist-hip ratio where as Group A is not having statistical significance. The treatment response for Waist-hip ratio statistical value shows that there is difference between Group A and Group B. In reduction % Group B is better than Group A. After follow up the reduction % remain same in Group B but slightly reduced in Group A.
- **Skin fold thickness:** In the present Clinical study observation is made that, Group A and Group B both are statistically highly significant in reducing the Skin fold thickness. The treatment response for Skin fold thickness statistical value is equal in both groups. In reduction % Group B is better than Group A. After follow up reduction % is same in Group B and raised in Group A, but still the Group B is better than Group A.

Discussion on overall assessment of treatment

After observing the above subjective and objective parameter, the effect of the therapy has been classified as good responded, moderate responded, mild responded and not responded. From the clinical data out of 40 patients 95% patients showed response and 5% patients was not

responded to treatment (i.e., 1 patient each from Group A & Group B). 57.5% showed mild response (23 patients i.e., 8 patients from Group A & 15 patients from Group B), 35% showed moderate response (14 patients i.e., 10 patients from Group A & 4 patients from Group B) and 2.5% showed good response (1 patient from Group A).

CONCLUSION

In the present study both groups are having similar effect on reducing the symptoms statistically. Among the subjective and objective parameters like *Atikshudha*, *Nidradhikya*, *Alasya*, BMI and Waist circumference Group A showed better reduction % than Group B. In parameters like *Atipipasa*, *Swasakruchata*, Waist-hip ratio and skin fold thickness Group B showed better reduction % than Group A. The symptoms of *Atikshudha*, *Swasakruchata* and Skin fold thickness have increased reduction % in follow up period of Group A (*Haridradi gana Churna*). By comparing the results of both the groups Group A is better than Group B.

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